

CLAIMS

What is claimed is:

- 5 1. An apparatus comprising: a handpiece providing, at a distal end thereof, an axial cannula, the handpiece further providing an axial channel for accepting a sleeve of an optical fiber, the axial channel terminating at the axial cannula; the axial cannula of such size as to receive advancement of the optical fiber therewithin, while blocking advancement of the sleeve; a hollow compression cap engaged within a proximal end of the axial channel; the
10 compression cap providing a means for gripping the sleeve upon advancement of the compression cap into the channel, so as to selectively prevent axial motion of the sleeve and optical fiber.
2. The apparatus of claim 1 wherein the compression cap is threaded into the channel by
15 converging threads; the gripping means comprising axially oriented fingers, arranged and positioned to close on the sleeve upon advancement of the compression cap into the channel.
3. The apparatus of claim 2 wherein the fingers are enabled for closing only to a diameter that is larger than a selected commercially available medical optical fiber.
- 20 4. The apparatus of claim 1 wherein the cannula is made, at least partially, of a super-elastic memory metal and is axially non-linear.
5. The apparatus of claim 4 wherein the super-elastic memory metal is Nitinol®.
- 25 6. The apparatus of claim 1 further comprising a compressible tube positioned and restrained at a proximal end of the channel and axially compressible by advancement of the compression cap, thereby providing a gripping force on the sleeve.

7. An apparatus comprising in combination: a handpiece providing, at a distal end thereof, an axial cannula, the handpiece further providing an axial channel terminating in a shoulder; a sleeve, coaxially fixed about an optical fiber, set axially within the axial channel and terminating at the shoulder; the axial cannula of such size as to receive advancement of the optical fiber therewithin, while the sleeve is blocked by the shoulder; a hollow compression cap engaged within a proximal end of the axial channel; the compression cap providing a means for gripping the sleeve upon advancement of the compression cap into the channel, so as to selectively prevent axial motion of the sleeve and optical fiber.
8. The apparatus of claim 7 wherein the compression cap is threaded into the channel by converging threads; the gripping means comprising axially oriented fingers, such that advancement of the compression cap into the channel closes the fingers onto the sleeve for thereby gripping the sleeve.
9. The apparatus of claim 7 wherein the fingers are enabled for closing only to a diameter that is larger than a selected commercially available medical optical fiber.
10. The apparatus of claim 7 wherein the cannula is made, at least partially, of a super-elastic memory metal and is non-linear.
11. The apparatus of claim 10 wherein the super-elastic memory metal is Nitinol®.
12. The apparatus of claim 7 further comprising a compressible tube positioned and restrained at a proximal end of the channel and axially compressible by advancement of the compression cap, thereby providing a gripping force on the sleeve.
13. A method of limiting the reuse of an optical fiber comprising the steps of: providing, at a distal end of an axial channel in a handpiece, an axial cannula; setting a sleeve coaxially about an optical fiber and within the axial channel; forming the sleeve of a size larger than

the axial cannula; advancing the optical fiber within the axial cannula; engaging a hollow compression cap within a proximal end of the axial channel; providing a means for gripping the sleeve upon advancement of the compression cap into the channel, so as to selectively prevent axial motion of the sleeve and optical fiber.

5

14. The method of claim 13 further comprising threading the compression cap into the channel through converging threads; tightening axially oriented fingers during advancement of the compression cap into the channel to thereby close the fingers onto the sleeve for gripping thereof.

10

15. The method of claim 13 further comprising positioning a compressible tube restrained at a proximal end of the channel, and advancing the compression cap axially thereby compressing the tube to produce a gripping force on the sleeve.

15

16. A method of limiting the reuse of an optical fiber comprising the steps of: providing a handpiece having, at a distal end thereof, an axial cannula, the handpiece further providing an axial channel terminating in a shoulder; placing a sleeve, coaxially fixed about an optical fiber, axially within the axial channel and terminating the sleeve at the shoulder; advancing the optical fiber within the axial cannula while blocking advancement of the sleeve by the shoulder; engaging a hollow compression cap within a proximal end of the axial channel; providing the compression cap with a means for gripping the sleeve upon advancement of the compression cap into the channel, so as to selectively prevent axial motion of the sleeve and optical fiber.

20

25